SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT	PAGES 10	PAGE 1
STATIONARY SOURCE COMPLIANCE DIVISION	APPL NO 478611	DATE 4/25/2009
PERMIT APPLICATION PROCESSING AND CALCULATIONS	PROCESSED BY TWW	CHECKED BY

EVALUATION REPORT FOR PERMIT TO CONSTRUCT

APPLICANT'S NAME:
CHEVRON USA, INC.

ID NO.: 800302
SUB ID NO. 3630

MAILING ADDRESS
17881 GOTHARD STREET
HUNTINGTON BEACH, CA 92647

CONTACT: PAUL COON
TERMINAL MGR

EQUIPMENT ADDRESS
SAME

EQUIPMENT DESCRIPTION:
STORAGE TANK NO. 477, CRUDE OIL, INTERNAL FLOATING ROOF, 35'DIA x 40'H, 6254 BBL WORKING CAPACITY, WELDED INTERNAL FLOATING ROOF WITH A MECHANICAL SHOE TYPE PRIMARY SEAL AND A RIM MOUNTED, WIPER TYPE SECONDARY SEAL.

BACKGROUND:
This application for a permit to construct Storage Tank No. 477 was submitted on Feb. 27, 2008. The application was assigned for processing on March 21, 2008 and deemed complete on June 3, 2008. The application was transferred to this engineer on April 24, 2009. A review of AQMD Compliance files indicates 1 NOV (P43829) was issued to the facility in the past 10 years. The NOV was for a loading rack violation in 2004, and the file is closed.
Currently the Chevron HB Terminal (HB) is a Title V facility that operates two gasoline, 1 diesel, and 1 ethanol storage tanks to supply 3 gasoline/diesel loading racks with a combined throughput limit of 3,232,000 gallons per day. A vapor recovery system vents the gasoline storage tanks and the loading racks to an afterburner. In addition, there is a fifth storage tank (no. 475) on site dedicated to crude oil storage. The applicant has filed this application to replace Tank 475 with a new, internal floating roof crude oil storage tank (Tank 477). Tank 475 is scheduled for demolition when Tank 477 is brought online. The coincident demolition of Tank 475 and construction of Tank 477 was conceived as a concurrent project with no net increase in ROG emissions and no offset requirement under Rule 1304(c)(2), however, the moratorium on Rule 1304 exemptions will require HB to provide VOC ERCs to offset emissions from the new Tank. HB has paid a 50% surcharge to expedite the processing of this application. The initial TV permit has already been submitted to EPA for 45 day review so in accordance with Rule 1303(a)(5) the permit to construct for Tank 477 will be included in the TV Permit as a non –federally enforceable permit, and HB will be required to apply for a TV permit revision within 90 days after the TV permit is issued to include the Tank 477 permit.

CALCULATIONS:

Tank Emissions

Assumptions:

- Tank 477 working capacity: 262,000 gallons or 6254 BBL (35' dia x 36.5' working ht.)
- Max annual throughput: (requested by applicant) 4000 BBl/day requested by applicant ~234 Turnovers/year or ~61,466,184 gal/yr.
- Maximum vapor pressure: (requested by applicant) 3 RVP (true vapor pressure = 1.6psia @ 60˚F)

Period	Proposed Throughput (gal)	RVP	Maximum Operating Potential to Emit ROG (lb.)[1]
Annual	61,308,000	3	1795.1
Jan.	5,122,182	3	148.6
Feb.	5,122,182	3	148.8
March	5,122,182	3	149.0
April	5,122,182	3	149.4
May	5,122,182	3	149.8
June	5,122,182	3	150.1
July	5,122,182	3	150.7
August	5,122,182	3	150.8
Sept.	5,122,182	3	150.4
Oct.	5,122,182	3	149.9
Nov.	5,122,182	3	149.1
Dec.	5,122,182	3	148.6

1. Calculated by applicant using EPA Tank 4.09b program
2. Based on 30 day average

Fugitive Emissions

Component	Service	No.	Factor (lb/yr)	Total (lb/yr)	
Valves	Heavy Liquid	7	3	21	
Flanges	All	18	1.5	27	

Fugitive Emissions Total = 48 lb/yr

$R1_{FE} = R2_{FE}$ = 48lb/yr/12 mo/yr/30 days/mo = .133 lb/day

ROG Emissions

R1 = R2 = 5.02 + .133 = 5.15lb/day/ 24hr/day ≈ **0.21 lb/hr**

ERC Determination

The highest monthly emission calculated by the EPA Tank 4.09b program (August @ 150.8lb) divided by 30 ≈ 5.02 lb/day plus the fugitive emissions ≈ 0.133 lb/day ≈ 5.153 lb/day rounded to nearest whole number = 5 lb/day

The required offset = 5 x 1.2 = 6 lb/day.

HEALTH RISK ASSESSMENT

Emissions used to calculate health risk are taken from the EPA Tanks program Crude Oil profile. This profile represents average content of toxic air contaminants typically found in Crude Oil.

Summary of Air Toxics Emissions from EPA Tank 4.09b Spreadsheet

Toxic Compound	Annual Emissions[1] (lb/yr)	Avg Emissions (lb/hr)
Benzene	12.51	1.428E-03
Ethyl benzene	6.88	7.854E-04
Hexane (n-)	9.35	1.067E-03
Toluene	17.97	2.051E-03
Xylenes	23.98	2.737E-03

1. Based on maximum throughput of 234 turnovers/year.

MICR and HAZARD INDEX by Tier 2 (See Risk Spreadsheets, Attached)

Basis:

- Emissions from domed external floating roof tank are best modeled in Tier 2 by a volume source calculation modified such that the source height is the top of the tank.
- The tanks VOC emissions are calculated by the EPA 4.0.9b Tanks program.
- Air Toxics are calculated from crude oil toxics fractions in the Tanks program.
- Emissions are assumed to be distributed evenly over 24 hours per day, 365 days per year.
- The MICR(commercial and residential) is calculated by spreadsheet using the updated risk program.
- Distances to receptors provided by applicant.
- The results of the RISK Spreadsheet calculations of are summarized in the following tables:

MICR

Carcinogen	Emission Rate	MICR	
	(lb/hr)	Sensitive/Residential	Worker/Commercial
Benzene	0.001428	**7.63E-07**	**9.37E-07**
Totals	**n/a**	**7.63E-07**	**9.37E-07**

HIA & HIC

HIA and HIC are calculated by spreadsheet using Tier 2 methods

VARIABLES			Cancer Burden			no
Hour/Day	24	hr/day				
Day/Week	7	day/wk	X/Q for one-in-a-million:			
Week/Year	52	wk/yr	Distance (meter			
Units	lb/hr	lb/hr or ppm	Area (km2):			
Exhaust Flow Rate	N/A	scfm	Population:			
Control Efficiency	0	%	**Cancer Burden:**			
Point Source?	V	p or v	No cancer burden, MICR< 1 in 1 million			
Stack Height	40	feet				
Area	962	sq. ft.				
Distance-Residential	385	meters				
Distance-Commercial	63	meters				
Met. Station		Long Beach				

HIA = [Q(lb/hr) * (X/Q)max] / Acute REL	HIA	HIC
HIC = [Q(ton/yr) * (X/Q) * MET * MP] / Chronic REL		
Target Organs	Acute	Chronic
Cardiovascular or blood system		4.55E-05
Central or peripheral nervous system		
Gastrointestinal system and liver		
Immune system	1.47E-03	3.59E-03
Kidney		4.55E-05
Reproductive system	2.61E-04	
Respiratory system	1.39E-03	2.76E-03
Skin	1.39E-03	
Eye		4.55E-05
Endocrine system	8.05E-05	4.02E-03

RULES EVALUATION:

CEQA: The CEQA Applicability Form (400-CEQA) indicates that the project does not have any impacts which trigger the preparation of a CEQA document. The expected impacts of the project on the environment are not significant, therefore a CEQA analysis is not required.

212: Public Notice is not required since emission increases from the project (ROG = 5.15 lb/day) are below threshold (30 lb/day). Tank has an MICR less than one in a million. There is no Cancer Burden. HIA and HIC are less than one. There is no school within 1000 feet.

401: Visible emissions are not expected under normal operation from storage tanks.

402: Compliance records indicate that there are no N/C and NOVs for the past three years and the facility is expected to continue in compliance with the rule.

Rule 463 – Organic Liquid Storage, Amended May 6, 2005

463(c)(2): Internal floating roof tank consists of a steel pan floating roof, mechanical shoe primary seal (Category A) and A rim-mounted single wiper, secondary seal system (Category A). Both primary and secondary seals are independently attached, separate from each other. All openings and fittings shall be gasketed. The concentration of organic vapors in the vapor space cannot exceed 30% of LEL. Compliance is expected.

463(d)(1): This paragraph applies to tanks with capacity between 251 -19,815 gallons. It is not applicable since Tank 477 working capacity is 262,676 gallons

463(d)(2): This paragraph requires the roof to rest on the product at all time and that emptying and filling of product must be continuous such that the roof never rests on its leg except for cleaning. Normal tank operation will comply with this requirement.

463(d)(3): Not applicable since the HB does not operate a facility for treatment of wastewater used to refloat the tank roof as specified in this rule.

463(d)(4): This paragraph limits true vapor pressure to 11psia or lower. Permit conditions for Tank 477 restrict contents to crude oils tanks with RVP of 3 or lower.

463(d)(5): Seals replacement. Not applicable. New Tank will have new category A seals.

463(e)(1): The applicant is required to submit an updated Rule 463 compliance plan before Tank 477 may be placed in service.

463(e)(2): The new tanks will have visible identification number.

463(e)(3): Inspection and notification requirements are required by permit conditions and addressed the facility's Rule 463 compliance plan. Tank 477 will be added to the compliance plan before it is placed in service.

463(e)(4): Maintenance requirement is effective upon completion of new tanks construction

463(e)(5): Reporting and Recordkeeping requirements are effective upon completion of new tanks construction

Rule 1149 – Storage Tank Cleaning and Degassing, Amended May 2, 2008
VOC emissions during cleaning and degassing of Tank 477 are to be controlled by one of the control methods mentioned in this rule. Compliance is expected.

Rule 1173 – Fugitive Emissions of Volatile Organic Compounds, Amended Feb 6, 2009
Rule 1173 categorizes leak types and stipulates maintenance & reporting requirements for fugitive components. The applicant is required to include these new installed components as a result of this project into their existing 1173 inspection and maintenance program. HB will be required to provide an updated fugitive count when construction has been completed. Compliance is expected.

Rule 1178 – Further Reductions of VOC Emissions from Storage Tanks at Petroleum Facilities
Not applicable. The Chevron HB Facility has not reported emissions exceeding 40,000 pounds of VOC in year 2000 or any year thereafter.

REGULATION XIII – New Source Review
1303(a): BACT.
BACT for internal floating roof tanks is listed in the table below. BACT for internal floating roof tanks are Category A primary seal and secondary seals. The applicant has proposed to install a mechanical shoe primary seal and a rim-mounted wiper secondary seal system. BACT for fugitives is not triggered since fugitive emissions is less than one pound per day.

Current BACT for Storage Tanks

Equipment	VOC	NO_x	SO_x	CO	PM_{10}
Internal Floating Roof	Category A Tank Seals and Comply with Rule 463 (10-20-2000)				

1303(b) Modeling: Not required for ROG.
Offsets: This project will have an emission increase of ROG equal to 5.15 lb/day/tank rounded to 5 lb/day x 1.2 = 6 lb/day from the Offset (in ERCs) amount of 6 lb/day are required
.
Sensitive Zone: HB will provide ERC from the Chevron Products Co. Refinery in El Segundo. Certificate No. AQ007778 for 7 pounds of VOC is being transferred to the HB ID 3630 account.

Facility Compliance: This facility is in compliance with the rules and regulations of the District.
Major Polluting Facility: HB is no a major polluting facility.

Rule 1401 New Source Review of Toxic Air Contaminants
The maximum toxic constituents for each tank yield MICR values less than one in a million. HIA and HIC are each less than one. Compliance is expected.

40 CFR 60 Subpart Kb
These new internal floating roof tanks will be equipped with primary and secondary seals.

40 CFR 63 Subpart BBBBBB
These tanks will comply with the applicable requirements of this rule by complying with Kb and Rule 463.

Reg XXX The facility is subject to Reg XXX. However, since a Title V Permit has not been issued, EPA review of the proposed permit is not required.

CONCLUSION:
This project will meet all District Rules and Regulations. It is recommended that Permits to Construct be granted subject to the attached conditions. Applicant will be required to apply for a TV revision within 90 days of P/C issuance. Applicant will be required to apply for Rule 463 plan revision to include Tank 477.

CONDITIONS:

1. OPERATION OF THIS EQUIPMENT SHALL BE CONDUCTED IN COMPLIANCE WITH ALL DATA AND SPECIFICATIONS SUBMITTED WITH THE APPLICATION UNDER WHICH THIS PERMIT IS ISSUED UNLESS OTHERWISE NOTED BELOW.
   [RULE 204]

2. THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.
   [RULE 204]

3. DURING ANY TIME WHEN THE TANK IS EMPTIED AFTER HAVING LAST CONTAINED A VOC WITH A REID VAPOR PRESSURE GREATER THAN 0.5 PSIA AND THE FLOATING ROOF WILL REST ON ROOF LEGS, THIS TANK SHALL MEET THE REQUIREMENTS REGARDING THE VENTING, DEGASSING, OR VAPOR TIGHT PROVISIONS OF RULE 1149 AS APPLICABLE.
   [RULE 1149]

4. THIS TANK SHALL BE EMPTIED AND REFILLED ACCORDING TO THE REQUIREMENTS OF RULE 1149 AND RULE 463.
   [RULE 463, RULE 1149, RULE 1303(a)(1)-BACT]

5. THE OPERATOR SHALL USE THIS EQUIPMENT IN SUCH A MANNER THAT THE HYDROCARBON CONCENTRATION BEING MONITORED, AS INDICATED BELOW, DOES NOT EXCEED 30 PERCENT OF THE LOWER EXPLOSIVE LIMIT (LEL). AN EXPLOSIMETER SHALL BE USED TO MONITOR THE HYDROCARBON CONCENTRATION IN THE VAPOR SPACE ABOVE THE INTERNAL FLOATING ROOF TWICE PER YEAR AT A 4 TO 8 MONTHS INTERVAL. ADEQUATE RECORDS SHALL BE KEPT TO SHOW COMPLIANCE WITH THIS CONDITION.
[RULE 463]

6. THE OPERATOR SHALL LIMIT THE USE AND THROUGHPUT TO NO MORE THAN THE 121,956 BARRELS PER CALENDAR MONTH WITH CRUDE OIL NOT TO EXCEED A REID VAPOR PRESSURE OF 3 PSIA.

   THE OPERATOR SHALL COMPLY WITH THE FOLLOWING THROUGHPUT MEASUREMENT PRACTICES:

   THE OPERATOR SHALL CALCULATE THE THROUGHPUT, IN BARRELS, BY THE FOLLOWING EQUATION: 0.14 x D x D x L, WHERE “D” IS THE DIAMETER OF THE TANK IN FEET BASED ON THE TANK STRAPPING CHART AND “L” IS THE TOTAL VERTICAL ONE-WAY ROOF TRAVEL IN FEET PER MONTH.

   THE OPERATOR SHALL INSTALL AND MAINTAIN AN AUTOMATIC TANK LEVEL GAUGE (ATLG) AND RECORDER TO CONTINUOUSLY RECORD THE VERTICAL MOVEMENT OF THE ROOF. FOR THE PURPOSE OF THIS CONDITION, CONTINUOUS RECORDING IS DEFINED AS ONCE PER HOUR.

   THE OPERATOR SHALL CALCULATE THE TOTAL ONE-WAY ROOF MOVEMENT, IN FEET, ON A DAILY AND MONTHLY BASIS.

   THE ATLG INSTALLED SHALL BE VERIFIED ONCE PER QUARTER BY COMPARING AGAINST A MANUAL TANK LEVEL MEASUREMENT. IF THE ATLG DIFFERS FROM THE MANUAL TANK LEVEL MEASUREMENT BY MORE THAN 1.0 INCH OR 0.8%, WHICHEVER IS GREATER.

   .IN THE EVENT OF A FAILURE OR ROUTINE MAINTENANCE OF THE ATLG, THE ATLG SHALL BE REPAIRED (IF NECESSARY) AND PUT BACK INTO SERVICE WITHIN 10 DAYS OF THE TIME THAT THE ATLG FAILED OR WAS REMOVED FROM SERVICE FOR MAINTENANCE. WHILE THE ATLG IS BEING REPAIRED OR MAINTAINED, THE THROUGHPUT SHALL BE DETERMINED BY THE SMITH MODEL F4-S1, 4 INCH POSITIVE DISPLACEMENT METER (OR EQUIVALENT) INSTALLED ON THE TANK OUTLET.
   [RULE 1303(b)(2)-OFFSET, RULE 1401]

7. REFILLING OR DEGASSING OPERATIONS OR OTHER OPERATION WHERE THE FLOATING ROOF WILL REST ON ITS LEGS SHALL BE RECORDED AND MAINTAINED FOR AT LEAST FIVE YEARS AND MADE AVAILABLE TO THE DISTRICT UPON REQUEST. SUCH RECORDS SHALL INCLUDE, BUT NOT BE LIMITED TO, THE TANK IDENTIFICATION AND TIME OF START AND FINISH OF OPERATION BEFORE AND AFTER THE OPERATION.
   [RULE 1149]

8. THE OPERATOR SHALL KEEP ADEQUATE RECORDS TO SHOW COMPLIANCE WITH THE LIMITATIONS SPECIFIED IN THIS PERMIT. SUCH RECORDS SHALL BE MAINTAINED AND KEPT ON FILE FOR AT LEAST FIVE YEARS AND SHALL BE MADE AVAILABLE TO THE EXECUTIVE OFFICER OR HIS AUTHORIZED REPRESENTATIVE UPON REQUEST.
[RULE 463, RULE 1149, RULE 1303(b)(2)-OFFSET, RULE 1401, 40 CFR 60 SUBPART Kb, 40 CFR 63 SUBPART BBBBBB]

9. THE OPERATOR SHALL PROVIDE TO THE DISTRICT, NO LATER THAN 60 DAYS AFTER INITIAL STARTUP, A RECALCULATION OF THE FUGITIVE EMISSIONS BASED ON ACTUAL COMPONENTS INSTALLED AND REMOVED FROM SERVICE. THE OPERATOR SHALL ALSO PROVIDE COMPLETE, AS BUILT, PIPING AND INSTRUMENTATION DIAGRAM(S) AND COPIES OF REQUISITION DATA SHEETS FOR ALL NON-LEAKLESS VALVES WITH A LISTING OF TAG NUMBERS.
[RULE 1303(b)(2)-OFFSET]

10. ALL NEW VALVES AND MAJOR COMPONENTS IN VOC SERVICE AS DEFINED BY RULE 1173, EXCEPT THOSE SPECIFICALLY EXEMPTED BY RULE 1173 SHALL BE DISTINCTLY IDENTIFIED FROM OTHER COMPONENTS THROUGH THEIR TAG NUMBERS (E.G., NUMBERS ENDING IN THE LETTER "N"), AND SHALL BE NOTED IN THE RECORDS.
[RULE 1173, 1303(a)(1)-BACT]

11. ALL NEW COMPONENTS IN VOC SERVICE AS DEFINED IN RULE 1173, EXCEPT VALVES AND FLANGES, SHALL BE INSPECTED QUARTERLY USING EPA REFERENCE METHOD 21. ALL NEW VALVES AND FLANGES IN VOC SERVICE, EXCEPT THOSE SPECIFICALLY EXEMPTED BY RULE 1173, SHALL BE INSPECTED MONTHLY USING EPA METHOD 21.
[RULE 1173]

12. IF 98.0 PERCENT OR GREATER OF THE NEW (NON-LEAKLESS TYPE) VALVES AND THE NEW FLANGE POPULATION INSPECTED IS FOUND TO LEAK GASEOUS OR LIQUID VOLATILE ORGANIC COMPOUNDS AT A RATE LESS THAN 200 PPMV FOR TWO CONSECUTIVE MONTHS, THEN THE OPERATOR MAY CHANGE TO A QUARTERLY INSPECTION PROGRAM WITH THE APPROVAL OF THE DISTRICT.
[RULE 1173, 1303(a)(1)-BACT EXEMPTION, 1303(b)(2)-OFFSET]

13. ALL NEW COMPONENTS IN VOC SERVICE WITH A LEAK GREATER THAN 200 PPMV BUT LESS THAN 1,000 PPMV, AS METHANE, MEASURED ABOVE BACKGROUND USING EPA METHOD 21 SHALL BE REPAIRED WITHIN 14 DAYS OF DETECTION. COMPONENTS SHALL BE DEFINED AS ANY VALVE, FITTING, PUMP, COMPRESSOR, PRESSURE RELIEF VALVE DEVICE, DIAPHRAGM, HATCH, SIGHT-GLASS, AND METER, WHICH ARE NOT EXEMPTED BY RULE 1173.
[RULE 1173, 1303(a)(1)-BACT EXEMPTION, 1303(b)(2)-OFFSET]

14. THE OPERATOR SHALL KEEP RECORDS OF THE MONTHLY INSPECTION (QUARTERLY WHERE APPLICABLE), SUBSEQUENT REPAIR, AND RE-INSPECTION, IN A MANNER APPROVED BY THE DISTRICT. RECORDS SHALL BE KEPT AND MAINTAINED FOR AT LEAST TWO YEARS, AND SHALL BE MADE AVAILABLE TO THE EXECUTIVE OFFICER OR HIS AUTHORIZED REPRESENTATIVE UPON REQUEST.
[RULE 1173]

15. FINAL DRAWINGS AND/ OR SPECIFICATIONS OF THIS EQUIPMENT INSTALLED/ CONSTRUCTED SHALL BE SUBMITTED TO THE DISTRICT WITHIN 60 DAYS PRIOR TO THE OPERATION OF THE EQUIPMENT. THIS SUBMISSION SHALL ALSO INCLUDE FINAL INSTALLED FUGITIVE COMPONENT COUNTS.
[RULE 1173, 1303(b)(2)-OFFSET]

16. PRIOR TO PLACING TANK 477 IN SERVICE, APPLICANT SHALL SUBMIT A RULE 463 PLAN MODIFICATION APPLICATION TO INCLUDE TANK 477.
[RULE 204, RULE 463]

17. THE APPLICANT SHALL SUBMIT AN APPLICATION FOR A TITLE V PERMIT REVISION TO INCLUDE THE PERMIT TO CONSTRUCT ISSUED UNDER APPLICATION NO. 478611 FOR TANK 477.
[RULE 3003(a)(5)]

PERIODIC MONITORING: NONE

EMISSIONS AND REQUIREMENTS:

18. THIS EQUIPMENT IS SUBJECT TO THE APPLICABLE REQUIREMENTS OF THE FOLLOWING RULES AND REGULATIONS:

VOC:	RULE 463
VOC:	RULE 1149
VOC:	RULE 1173
VOC:	40 CFR 60 SUBPART KB
HAP/TOC:	40 CFR 63 SUBPART BBBBBB